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AMENDMENTS TO THE CLAIMSIn the Claims:

1. (Original) A method for monitoring T-top gate formation comprising:
providing a wafer structure undergoing a T-top gate fabrication process;
generating a signature associated with the wafer structure during a process step to monitor formation of the T-top gate; and
comparing the generated signature to a signature store to determine a state of the T-top gate.
2. (Original) The method of claim 1, wherein a scatterometry system is employed to generate the signature associated with the wafer structure.
3. (Original) The method of claim 1, wherein generating the signature comprises:
directing a beam of incident light at the wafer structure;
collecting a light reflected from the wafer structure; and
transforming the reflected light into the signature.
4. (Original) The method of claim 1, wherein the signature corresponds to a particular profile associated with the wafer undergoing T-top gate formation.
5. (Original) The method of claim 1, wherein an analysis system compares the generated signature to the signature store to determine the state of the T-top gate.
6. (Original) The method of claim 1, further comprising feeding information relating to the state of the T-top gate back into the T-top gate fabrication process to optimize T-top gate formation.

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7. (Currently amended) An in-line method for determining T-top gate dimensions comprising:
- providing a wafer structure having a T-top gate formed thereon;
 - generating a signature associated with the T-top gate;
 - comparing the generated signature with a signature store to determine the dimensions of the T-top gate; and
 - [if the dimensions of the T-top gate are not within a pre-determined acceptable range, then] adjusting T-top gate process parameters using feedback control.
8. (Original) The method of claim 7, wherein a scatterometry system is employed to generate the signature associated with the T-top gate.
9. (Original) The method of claim 7, wherein generating the signature comprises:
- directing a beam of incident light at the wafer structure;
 - collecting a light reflected from the wafer structure; and
 - transforming the reflected light into the signature.
10. (Original) The method of claim 7, wherein the signature corresponds to a particular profile associated with the wafer undergoing T-top gate formation.
11. (Original) The method of claim 7, wherein an analysis system compares the generated signature to the signature store to determine the state of the T-top gate.
12. (Original) The method of claim 7, wherein adjusting T-top gate process parameters using feedback control comprises feeding information relating to

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the state of the T-top gate back into the T-top gate fabrication process to optimize T-top gate formation.

13. (Original) The method of claim 7, wherein T-top gate dimensions comprises amount of undercut and effective gate width.
14. (Original) The method of claim 7, further comprising generating a schematic cross-section of the T-top gate to determine its profile and dimensions.
15. (Original) The method of claim 14, wherein the schematic cross-section of the T-top gate is generated from the light reflected from the wafer structure.
16. (Currently amended) An in-line method for determining T-top gate dimensions comprising:
 - providing a wafer structure having a T-top gate formed thereon;
 - directing an incident beam of light at the T-top gate;
 - collecting the reflected light associated with the T-top gate;
 - generating a signature associated with the T-top gate using the reflected light;
 - comparing the generated signature with a signature store to determine the dimensions of the T-top gate; and
 - [if the dimensions of the T-top gate are not within a pre-determined acceptable range, then] adjusting T-top gate process parameters using feedback control.
17. (Original) The method of claim 16, wherein a scatterometry system is employed to generate the signature associated with the T-top gate.

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18. (Original) The method of claim 16, wherein the signature corresponds to a particular profile associated with the wafer undergoing T-top gate formation.
19. (Original) The method of claim 16, wherein an analysis system compares the generated signature to the signature store to determine the state of the T-top gate.
20. (Original) The method of claim 16, wherein adjusting T-top gate process parameters using feedback control comprises feeding information relating to the state of the T-top gate back into the T-top gate fabrication process to optimize T-top gate formation.
21. (Original) The method of claim 16, wherein T-top gate dimensions comprises amount of undercut and effective gate width.
22. (Original) The method of claim 16, further comprising generating a schematic cross-section of the T-top gate to determine its profile and dimensions.
23. (Original) The method of claim 22, wherein the schematic cross-section of the T-top gate is generated from the light reflected from the wafer structure.
24. (Original) An in-line system for monitoring T-top gate formation comprising:
a wafer structure undergoing a T-top gate formation process;
a T-top gate formation monitoring system for generating a signature associated with wafer surface dimensions during a process step; and
a signature store coupled to the monitoring system, wherein the generated signature is compared to the signature store to determine a state of the T-top gate.

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25. (Currently amended) The system of claim 24, ~~further comprising a scatterometry system that monitors~~ the T-top gate formation ~~[monitoring comprises a scatterometry system]~~.
26. (Original) The system of claim 24, wherein the T-top gate formation signature store comprises known signatures of wafer structures as they appear during the T-top gate formation process.
27. (Original) The system of claim 24, wherein the signature corresponds to a particular profile associated with the wafer undergoing T-top gate formation.
28. (Currently amended) The ~~[method]~~ system of claim 24, wherein wafer surface dimensions comprise amount of undercut and effective gate width.
29. (Currently amended) The ~~[method]~~ system of claim 24, ~~further~~ comprising a feedback control system operatively coupled to the T-top gate formation monitoring system.
30. (Currently amended) An in-line system for determining T-top gate dimensions comprising:
- a wafer structure undergoing a T-top gate formation process;
 - a scatterometry system ~~[coupled to the formation process for directing light at and collecting reflected light from]~~ that directs light to the wafer structure and collects light therefrom, as part of the formation process;
 - a signature store comprising known signatures associated with T-top gate formation;
 - a T-top gate formation analysis system coupled to the scatterometry system and to the signature store for determining the T-top gate dimensions;
 - and

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a feedback control system coupled to the T-top gate formation analysis system for optimizing T-top gate formation.

31. (Original) The system of claim 30, wherein the T-top gate formation signature store comprises known signatures of wafer structures as they appear during the T-top gate formation process.
32. (Original) The system of claim 30, wherein the signature corresponds to a particular profile associated with the wafer structure undergoing T-top gate formation.
33. (Currently amended) The ~~{method}~~ system of claim 30, wherein the T-top gate dimensions comprise amount of undercut and effective gate width.
34. (Currently amended) An in-line system for determining T-top gate dimensions comprising:
- means for providing a wafer structure having a T-top gate formed thereon;
 - means for generating a signature associated with the T-top gate;
 - means for comparing the generated signature with a signature store to determine the dimensions of the T-top gate; and
- ~~{if the dimensions of the T-top gate are not within a pre-determined acceptable range, then}~~ means for adjusting T-top gate process parameters using feedback control.